

From Quarry To Gallery: The National Gallery of Art



NATIONAL GALLERY OF ART, WASHINGTON, D.C., GALLERY ARCHIVES

The American marble representatives examine an Italian quarry. Finding the precise quality and color for the pillars of the National Gallery of Art was no small challenge.

About the Author

Nancy Hunter Kennedy is a Proctor native. A graduate of George Washington University, she worked as librarian and research assistant at the Textile Museum in Washington, D.C. She and her husband lived for many years in Southeast Asia and South America. She returned to Proctor in 1989. She is a trustee and volunteer at the Proctor Free Library and a member of the Proctor and Rutland Historical Societies. Nancy condensed and edited "Redfield Proctor: Secretary of War, 1889-1891", *Rutland Historical Society Quarterly*, Vol. XXIX: No. 4 in 1999. Much of Nancy's source material comes from her father's records in the Hunter-Kennedy Family Archives. Contact the Proctor Free Library for further information about these materials. The author wishes to give her thanks and appreciation to Elaine Purdy for encouragement and to Elinor Patch for assistance.

Introduction

The twenty-four columns of Italian Verde Imperial marble dominating the rotunda of Washington's National Gallery of Art have excited the imagination of visitors since their placement in 1940.

When the dedication of the Gallery took place on 17 March 1941, F.J. Plimpton, New York branch manager of the Vermont Marble Company, fabricator of the columns, was in attendance with other dignitaries including President Franklin D. Roosevelt. On that occasion, Plimpton recounted the process of the selection of the marble and the manner in which the columns were constructed in five drums rising from and capped by the Italian marble Istrurian Nuage. The records and journals kept by the marble men involved in the enterprise tell the history of the columns, from the selection process, through fabrication, to their final destination at the Gallery rotunda.

The diarists quoted here are O.R. Eggers, architect with the New York City firm of John Russell Pope; Claude I. Hunter, chief marble expert from the Vermont Marble Company; and James Stuart, construction engineer representing the National Gallery and the Mellon Trustees.

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By Nancy H. Kennedy

Business travel - 1938.

Leaving New York 16 April 1938 on the Italian liner *Rex*, Eggers and Hunter had one thing in mind; their quest for the highest quality and the best colored marble for the National Gallery of Art. Hunter wrote that the weather was clear, sea fairly calm and that he had two Swiss gentlemen as dinner companions. The forenoon had been busy preparing necessary data for the trip and stopping at the Guaranty Trust for "Travellers' " lira. He sent cables to France, Italy, and home; then retired at 11:30 p.m. He noted there was a full moon and that tomorrow was Easter. Clocks were advanced 50 minutes to compensate for European time.

During the next days he met with Pisani of Pisani Marble Co., of New York City and Eggers. They were all traveling on marble business.

On 23 April the *Rex* stopped four hours in Naples. It was overcast and cool, requiring a topcoat. Hunter walked around the city waterfront noticing, with the eye of a marble man, a large number of marble statues. He also noted a newly constructed dock and the presence of many warships in preparation for Hitler's May 5th visit.

The *Rex* passed on to Genoa which, like other west coast Italian cities and towns, lies on the side of hills running down to the water. Upon landing Hunter made contact with Charles Sassella and Leon Funck who represented Marmie e Pietre d'Italia, the country's largest and most important producer and fabricator of marble. He took the 6:04 p.m. train to Viareggio and arrived at 9:30 p.m. He noted that there were 92 tunnels between Genoa and Spezia.

Quarries

On 26 April Sassella and Hunter met with Eggers and construction engineer Stuart. From Spezia they drove over the mountain, enjoying the wonderful views, to Chiavari, where they visited Verde Imperial and Red Antique quarries. The quarries were about five miles from

Chiavari on the mountainside, approximately 1200 feet above the low valley. Eggers wrote "Verde Imperial [quarries are]...situated on the mountain and to reach them necessitated a climb of 1400 feet. This is accomplished on mule back and is fairly easy though very steep in places".



HUNTER-KENNEDY FAMILY ARCHIVES

Left to right on mule back are the American marble team of Hunter, Eggers, Olsen and Stuart.

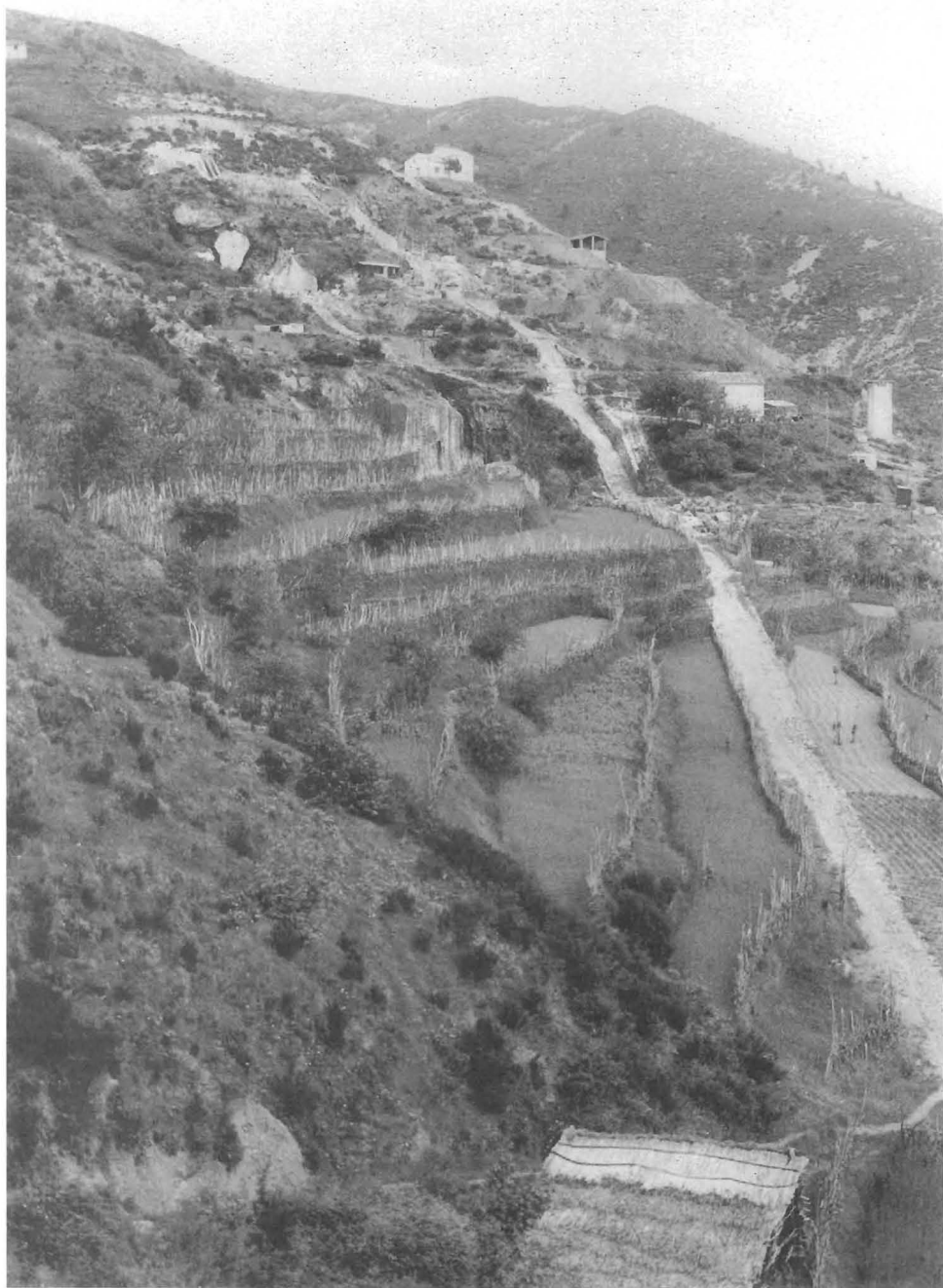
Eggers wrote in a description of the quarries that they "consist of boulder formations, [the] upper face of which is approximately 28 feet high by about 50 feet wide; then [with] a level floor about 50 feet in depth and another vertical face approximately 18-20 feet high and 35 feet wide... [with] more marble below this, a portion of which [has] the floor showing but... mostly covered."

Stuart noted that "the quarries are in very good condition. The marble is not laminated but is a conglomerate or brecciated marble. There is no question but what 16 columns can be gotten, all selected as to color and quality, within a period of 6-8 months". The architects must have thought of 16 Verde Imperial and eight Red Antique at one point for Stuart comments that there was enough of the red marble to supply eight columns within eight to nine months.



*Top: Grand view of Green Imperial quarries.
Bottom: The intersection of the road at the loading dock.*





The hillside shows a road for lowering blocks of marble from the quarries in the hills above.

On the 27th of April Hunter wrote "visited Levanto quarry and later in the day went again by mule back to the Verde Imperial and Red Antique of Italy". Eggers notes that the two marbles are in very close range, about 40-50 feet apart. (In the Morgan Library and Museum in New York City there is a marble room which has the two marbles together.) Stuart noted that they spent the afternoon at Levanto and were quite satisfied with their inspection.

Other quarries and workshops were visited. Among these were the Vanonni quarries which were more easily reached, "just off the auto road." Stuart called it a huge conglomerate. Eggers said the material ran from the red with very little green in close conglomerate formation to green areas of blending to dark red. "I am certain portions...contain...a great proportion of white veining which is particularly undesirable," he noted. After examination the Vanonni quarries were deemed undesirable.

On the 28th of April Hunter and others left Chiavari early for Farmura, another green quarry. Hunter felt, however, it looked more like a developing quarry. It did lie close to the railroad, thus lowering costs. As a point of fact there was no entry to the quarry except by train. The marble was sound enough but contained large amounts of white quartz and red metallic.

Along with visits to quarries, the men visited showrooms and finishing plants. At the Viareggio show room they were shown 125 samples of marble, mostly Italian. At the Pietrasanta finishing plant they learned the lathes could turn a column 12 feet long. They stopped at Avenza where Marmie e Pietre d'Italia had some 50,000 tons of Carrara and other marbles. They further visited a Marmie e Pietre plant that was able to turn columns. At this point Stuart was feeling a better match could be made if the marble was fabricated in Italy. Marmie e Pietre d'Italia had three plants equipped to turn drums into columns and Sassella advised that his company would add equipment in Avenza to ensure twenty-four columns in eight to nine months. Eggers was more hesitant, feeling that the shops were not as well equipped as the domestic US shops. Hunter argued that the European conditions [the threat of war] and exporting from Italy were in question. He argued further that Vermont Marble would be able to provide direct oversight of the fabrication, adhering to the exacting specifications required by the architects. Vermont Marble (VMCo) had the skilled men for the job, the lathes and the plant capacity. In essence Marmie e Pietre d'Italia and VMCo were competing for the job of fabricating the columns. Hunter was able to make the persuasive argument that the VMCo had the capacity, could retool faster and more easily and that oversight was direct.

Considering the Depression and that it was an American public building, he argued that since the marble was of Italian origin the work should be done in the United States.

Rome and Finances

To finance these marble dealings Hunter went first to the Italian offices in Rome where he was referred to Metro Goldwyn. Mr. Bedini offered a 30% discount toward any amount that he, Hunter, would name at a later date. It was difficult, if not impossible, to transact dollars and lira at this unsettled time. It is not quite clear but a tripartite arrangement seems to have been developing whereby Metro Goldwyn would act as intermediary between the Vermont Marble Company and Marmie e Pietre d'Italia. Dollars in the U.S. and Metro Goldwyn would pay Marmie e Pietre in lira in Italy. It was an unusual arrangement for the time. Later correspondence indicated that it appeared that the Italian government authorized these arrangements of export premiums that it claimed would, after the war, have no reason to exist. In the end, Sassella claimed that Marmie e Pietre d'Italia never made any great amount from the transaction.

Hitler's Visit

Traveling in Rome at this time was an experience. On April 30th Hunter's diary noted large numbers of soldiers and officers on the streets. On Sunday, the next morning, he wrote that Italian soldiers passed the hotel singing and bands were playing. Two blocks away they watched thousands of soldiers marching by. Later the marble men visited the site of the Mussolini Forum and drove around the principal streets that Hitler would travel. Flags and decorations were going up quickly; as men worked all day and night Sunday to clean up the streets. Hunter hired a guide to show him the interesting points of Roman history. They had dinner at a restaurant near the Forum and nearly all in the restaurant were Germans. Afterward they saw the King's Palace where Hitler would stay. Hotels, were jammed full; their employees were to sleep out and even the bathrooms and hallways were used as bedrooms. Hunter felt very fortunate to have kept his room at the Alberta Morina-Strant for these nights. Tuesday he bought a guidebook, picked up his camera that had been repaired, and went on to visit the Sistine Chapel and St. John Lateran. With the guide they traveled the streets looking to secure a good place to view the evening parade. By 4:00 p.m. people had assembled and taken the best of unassigned locations. The Americans found a spot but were driven out three

different times. At the last place they found, they were boxed in and had to stay. They purchased campstools and spent the time watching the people and army assemble. Sand was put on the road as a carpet. Flags were displayed everywhere on temporary poles arranged about 20 feet apart along the principal streets. At 7:30 p.m. lights were turned on. At 8:00 o'clock additional large oil torches made quite an effect. At 8:30 the cannon fired every minute for some time. Mussolini arrived first at the station in order to greet Hitler. The King of Italy and Hitler, followed by the King's guard, arrived. Carriage after carriage followed.

Along both sides of the roadway soldiers were stationed close together. The Carbonari with their red plumes were interspersed between every four soldiers in some places. Women in costume from the provinces of Italy exhibited many gay colors. Hunter could not take photos as he had no permit. Thousands of soldiers and lancers, girls and boys of all ages, were in the march. There were no cars and few taxis along the way so the American party walked over four miles back to the hotel. Into the night there were thousands and thousands of soldiers in the streets.

The day of Hitler's visit was a national holiday. The whole week was a holiday with pay for workmen. The only apparent negative came when Hitler asked the pope for an audience but the pope left Rome for his country place.

Decision

In May 1938 the architects made their preliminary and first recommendations to the Mellon Trustees that called for sixteen columns of Verde Imperial as the center circle of marble. The desirable continuous lengths were possible and could be cut into 5 blocks for shipping. There was enough marble for twenty-four columns of Verde Imperial, if required, and deliverable in eight months. Eggers still spoke of the eight columns, two at each entrance to the Rotunda, as Russo Antico. The Mellon Trustees, however, felt that all 24 columns of Verde Imperial would best serve the Rotunda, not a mix of two marbles.

During May there were questions about importation and customs duties. They were, however, resolved under a section of the Tariff Act of 1930 which allowed articles to be used as public monuments to enter free of duty. In July 1938, Higgins of John Russell Pope Architects made a first visit to the Vermont Marble Company in Proctor, Vermont, to inspect the mills. He spent the day with Mr. Cook, the manager, going through the facilities and confirmed that VMCo has "an excellent plant and lathes and could turn three

columns simultaneously”.

Contract

By 31 December 1937 bids had gone out for the columns. There were twelve bids returned by 26 January 1938 along with an estimated time of completion. Vermont Marble Company was the low bid for the twenty-four columns of Verde Imperial and Levanto; \$151,440 for the columns and \$47,000 for bases and caps of Isturian Nuage.

The contract between Vermilya-Brown, engineers, and the Vermont Marble Company, as subcontractor, laid down terms under which the work done by the subcontractor was specified in very detailed terms. All work was under the direction of the architects, Eggers and Higgins. The subcontractor agreed that the color would fall within the range of the five samples of marble submitted. The contract continued that the subcontractor “shall select for each of the shafts darker at the bottom and an approved gradation to lighter shades at the top”. It was especially required that care be used in color selection. This was the “paramount” requirement. Consideration of all color and markings would be with the final approval of the architects.

The contract also required that the architects would inspect the bimonthly blocks from Italy for the five columns (a total of 25 blocks) on arrival and further along on arrival at the mills, and at intervals, thereafter, inspect progress at the mills. The subcontractor (VMCo) will have the columns set in such a way at the mill that the architects may approve or disapprove the arrangement and may shift the drums to produce a more desirable effect.

As blocks left the quarry they would be numbered according to their location in the quarry continuous ledge, so at arrival at the Proctor mill they would be as taken from the quarry.

Shipping

The 122 raw blocks of Italian Verde Imperial began leaving the Italian port on 30 September 1938 as ballast on the ship *Exminister*. The first shipment consisted of fifteen blocks, equivalent to three columns. Each block weighed nearly ten tons. On 20 October 1938 the VMCo New York Branch office received word that the *S.S. Exminister* with fifteen drums, shipped on 30 September from Italy, would dock in New Jersey on 31 October and would unload into cars that could be expected in Vermont the next week. Marmie e Pietre also informed New York that all quarries were at full capacity and to expect three columns (15 blocks) every month as long as the weather held.

The shipment records indicate that the raw blocks continued to depart Italy from December 1938 until 16 August 1939. This last shipment was two weeks before World War II broke out on 2 September and relations with Italy became unsettled.

Inspections

Eggers (architect) and Olsen (engineer) made their first visit to Proctor on the 18th and 19th of November. The columns were laid on the ground and seen under both artificial and natural light. Eggers and Olsen were able to inspect them from a 35 foot high catwalk set up by arranged by Vermont Marble on an overhead derrick. The blocks were sprayed with water to bring out their color. Present along with Eggers and Olsen were Sutton, Hunter, Cook, Sassella, Plimpton, and Tenerani. Further inspections were made at monthly intervals.



HUNTER-KENNEDY FAMILY ARCHIVES

Inspecting the newly arrived marble. Left to right are Eggers, Olsen, Cook, Tenerani, Sassella, and Hunter.

Production

According to *Marble Chips* (March 1939) the first blocks received in Proctor were turned over to Almo Tenerani and his team of Almo Buggiani and Ben Carney. The team put in a metal center on which the blocks revolved on the lathe. Every step demanded the utmost precision with each step built on the previous steps. On the lathe, the

blocks were turned over to Tony Marfuggi and Almo Baccei who then trimmed off the corners with the diamond saw. The blocks were now roughly octagonal. Next the blocks were turned over to the planers operated by Alex Olsen and Carl Berg. "With the long strokes as the machine table worked back and forth under the stationary tool, the corners were further rounded so that as the marble reaches the lathe in the next step it is beginning to take the shape of the eventual drum". It was noted in *Marble Chips* that "gouging tools, or chisels ordinarily used to turn out marbles are not satisfactory for this brecciated product so all grinding must be done by abrasion with carborundum wheel. As the marble rotated slowly in one direction, the carborundum wheel, spinning rapidly, moves along a horizontal shaft from one end of the drum to the other. As the carborundum wheel is in contact with the marble it grinds it down to the desired diameter". This, of course, took much time and required the work of many men. Hopper Noren, Fritz Gollstrom, Alex Anderson, Erick Oscarson were the men who operated the carborundum wheel.

Almo Tenerani, production manager on the job, had "special gauges made to guide the work on the lathe and to keep it within a hair of the correct size". "These gauges are shaped like huge calipers but are inflexible to a great degree. There are a number of these and they are graduated to test the drums at various points to take care of the taper to which they are turned". The lathe operators had been warned to keep them on a horizontal plane as vertically the weight of the lower arm would pull the gauge size. The finished columns were from 4'7" in diameter and 6'7" in height at the base to 3'10" in diameter and 6'7" in height at the top. The five drums totaled 33'. The turned Ionic style bases and caps of Isturian Nuage added 4'.

The polishing was done on different lathes by Louis Fredette and Toddy Gallipeau. As great accuracy was necessary in joining the top and bottom to insure fitting with the 1/16 inch joint when being set, this work had to be accomplished with great care. The marble was set in another lathe; this time a carborundum saw was used which moved in toward the axis of the drum as the marble revolved making a true cut for the joint. Johnny Horvath and Charles Skuba handled this operation. Imperfections, so often apparent in foreign marble, were doctored up by Albert Hector, waxer, before the marble was inspected. Tony Taranovich and Warner Brown ran into a novel requirement they had never encountered in all their years of crating marble. Each drum as it was boxed had to be carefully wrapped in flannel cloth, not excelsior. Lee O'Conner checked and inspected each piece before Tony and Warner wrapped them and built boxes around them.

Managing these drums, each six and one half feet high and five feet thick and weighing seven to ten tons, required devising new methods of moving these huge objects. The production and engineering department men came up with five “low cradles” built of heavy timber; each “having set into the top, four rubber tire wheels on ball bearings”. These cradles were placed in a straight row – one drum to each cradle – and laid in the sequence they were to follow in the Gallery Building. Architects and other inspectors could look down from a catwalk above the columns as the drums were slowly revolved until the pieces matched. A great deal of time and labor was saved by this method.



THE MEMORY STONE, VERMONT MARBLE COMPANY

The huge drums of Verde Imperial marble for the National Gallery of Art in Washington were matched and marked in the shops of the Vermont Marble Company. With pieces weighing nearly ten tons it was a sizeable task to line up these pieces for inspection by the architects.

Problems

Due to weather and selection problems at the quarry the shipment on the S.S. *Exmoor* on 15 May 1939 was not made. Mr. Funck in Italy wrote that new difficulties had arisen at the quarries. Funck reported to Hunter what was happening and hoped that he could explain to the architects. Funck concluded, somewhat dolefully, that numerous defects had been observed and uneven colors had forced them to “discard tremendous

quantities” and rather poetically added that he hoped those in America could explain that “such blocks cannot be kneaded together like bread”. If the architects could see now and compare the quarry to what Eggers and Stuart saw in April 1938 they would be “more than astonished”. “So much has been removed”. Rain had been continual in the Chiavari region, which was unusual, and had prevented work in the quarries. He considered a small delay was better to guarantee good selection – so much is required and desired for so large and important a building. He hoped that a complete shipment would be made in July. Hunter wanted to impress upon Funck the need to ship in a shorter time. He asked, “Can more men or equipment be put on the job?” Funck insisted that nothing more could be done – all the men and equipment needed were there and being used. The wire saws were running all day and all night. As more material was sawed and rejected, it accumulated and caused more work to remove the sound blocks. “As you [Hunter] know”, Funck says, “they have no derricks. Everything must be jacked around by hand”. “This movement of blocks is very much slowed up and skidding down the mountain is absolutely stopped during the rainy weather; wire sawing can be done during the rain but the blocks can not be moved into position to saw”.

Final inspections

On the 5th to the 7th of September, 1939, the Proctor inspections were coming to an end. In what Sutton called a joint examination of three hours hard work, a total of 15 drums were assembled, rearranged and matched. By noon on September 7th, Reed, Eggers, Olsen and Sassella had left for New York City, having completed their final inspection and approval.

Delivery to Washington

Finally, the columns, caps and bases were boxed and loaded in Proctor and sent to their destination in the Rotunda of the National Gallery of Art. Only partial shipment information is available; however, these forms show shipment by way of the Rutland Railroad to the New York Central and the Pennsylvania Railroad. It is believed they crossed the Hudson River just south of Albany, making possible a transfer to the Pennsylvania on the western shore of the Hudson River in New Jersey. Transferring through New York City would have been almost inconceivable.

Additional Production

The Center Rutland plant produced Roman Travertine for the walls of 44 exhibiton galleries and the heavy door trim. The VMCo had

been awarded this contract. A large factor in securing the contract was the fact that VMCo had a supply of high quality travertine available for delivery. During a 1936 visit to Italy, Hunter had fortuitously purchased a supply of travertine. The Verde Imperial marble for the floor was the result of cutting the triangular corners of each drum block. Then this part of the marble was saved and sawed into thin slabs. Proctorsville Green was also used in the Rotunda floor as well as the large central hallways leading away from the Rotunda. The Proctorsville Green work was sawed and polished by Vermont Marble workers in Center Rutland as was the Radio Black used in the rest rooms.

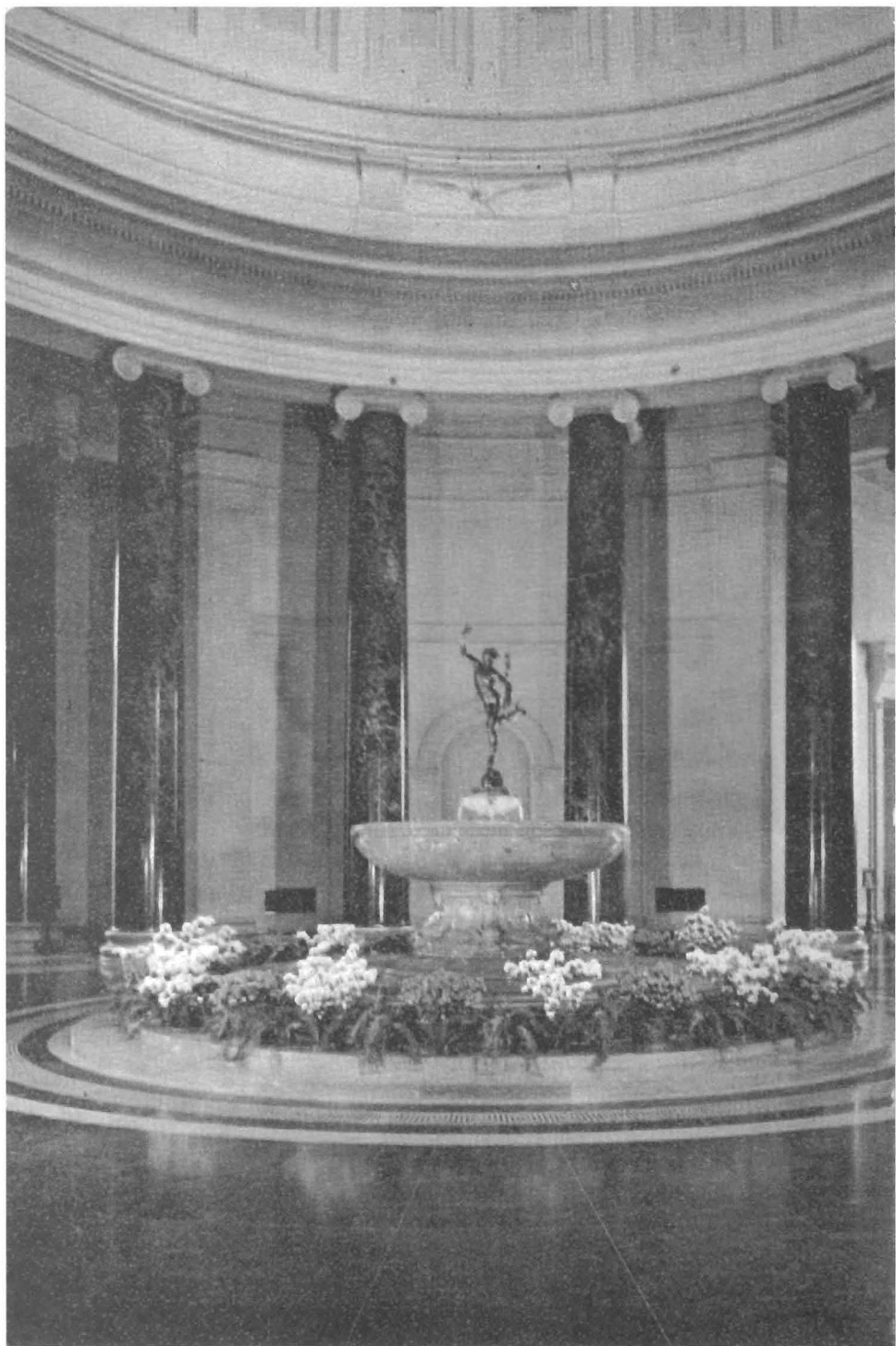
Fountain

Most important to the Rotunda was the fountain at the intersection of the main axis, which was a delicate, lovely statue of Mercury donated by Mr. Mellon. It was required that this piece of marble be in one piece. The fountain of Phantasia Rose marble required 15 months searching for the perfect, absolutely sound piece of marble with an "even distribution of color and markings". It was finally found at the bottom of the Bagle Quarry in Tennessee and "in its rough state weighed over 27 tons". When turned, shaped and polished, it finally weighed seven tons. It was carved by Levio Pelligrinella, who was Carrara schooled.

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There is an unabridged copy of this paper in the Proctor Free Library with more details of the quarries in Italy and the architects visits to Proctor and correspondance between interested parties.



The finished Rotunda of the National Galley of Art with the beautiful fountain in the foreground.